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ABSTRACT

The Educational Forces Inventory (EFI) charts the relative influence of 15 factors on teacher morale and classroom effectiveness. Ten general factors are: school principal; central office administrative personnel; other teachers in the school; parents; prescribed curriculum; testing programs; state legislation; physical facilities; community social environment; and curriculum personnel. Three components applicable to this sample--Project Follow Through teachers--are: program director, program advisor, and other adults in the classroom. Several hundred Follow Through teachers and teaching assistants in grades K-3 participated in a field test of the instrument, with concurrent administration of the Purdue Teacher Opinionaire (PTO). They characterized each force along two dimensions: the amount of influence it exerts upon the classroom process, and the degree to which this influence is positive or negative. The data indicated test validity: the pattern of importance ratings corresponded to independently assessed patterns of physical and social distance; the positive ratings for particular forces correlated substantially with corresponding subscores of the PTO; and the pattern of responses reflected aspects of internal consistency. Some ways of utilizing EFI data are: plotting and interpreting two-dimensional force fields, using them in program implementation, and facilitating the work of the teacher in the classroom. (Author/MH)

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THE EDUCATIONAL FORCES INVENTORY: A NEW TECHNIQUE FOR MEASURING INFLUENCES ON THE CLASSROOM

by

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ABSTRACT

The Educational Forces Inventory (EFI) is a technique for assessing the constellation of forces in the teacher's social-psychological field. Thereby important stress points for teachers are identified and their work in the classroom is facilitated. The EFI charts the relative influence of each of thirteen forces that are important factors in the educational setting. Teachers are asked to characterize each force along two dimensions: the amount of influence it exerts upon the classroom process, and the degree to which this influence is positive or negative. Several hundred teachers and teaching assistants in Follow Through classrooms throughout the country participated in a field test of the instrument, with concurrent administration of the Purdue Teacher Opinionaire (PTO), an established measure of teacher morale. The high rate of return and correct completion on the EFI indicated that it is a practical technique. In addition, the data indicated validity for the instrument in three important respects: 1) the pattern of importance ratings correspond to independently assessed patterns of physical and social distance; 2) the positive/negative ratings for particular forces correlated substantially with corresponding sub-scores of the PTO; and 3) the pattern of responses reflected aspects of internal consistency. Some ways of utilizing EFI data are discussed: how to plot and interpret two-dimensional force fields, and how to use them in program implementation and especially to facilitate the work of the teacher in the classroom.

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THE EDUCATIONAL FORCES INVENTORY: A NEW TECHNIQUE FOR MEASURING INFLUENCES ON THE CLASSROOM[1]

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Situational variables of the educational setting have a significant influence on teachers and on the teaching/learning process in the classroom. Little is known about the extent or the type of influence of specific variables. Dreeban (1973) has stated "The study of the impact of the environment, both within school systems and from the external community, on the work of teachers, has barely begun."

In mapping the relationship of teachers to the environmental setting, the usual approach is to focus on the characteristics of teachers and their attitudes. For instance, the Minnesota Teacher Attitude Inventory (Cook, Leeds, and Callis, 1951) and the Purdue Teacher Opinionaire (Bentley and Rempel, 1970) both refer to "teacher morale" as the central variable. But if we are to improve the lot and the effectiveness of teachers, we must go beyond teacher attitudes, and try to identify the salient situational elements which affect both teacher morale and teacher effectiveness.

Here we present a technique which charts the educational setting considered as the teacher's work-space. The name of this technique is the Educational Forces Inventory, or EFI. It has been successfully tested and applied "in the field." In this paper we present data on the initial validation of this technique, and discuss how to plot force fields, how to interpret them, and how they can be made useful for program implementation and for modifying classroom processes.

Force Fields in Education

The concept of a psychological field of force was developed by Lewin (1935) as a means of understanding an individual's behavior in relation to his environment -- to provide a common frame of reference for the interplay of "internal states" and of "objective reality." For instance, a child that is repeatedly prevented from approaching a desired object, say a ball, eventually erects an internal barrier which allows him to "forget" about it and thus avoid further frustration. A force field reflecting this situation will show the child in relation to the desired object, with an intervening barrier making it inaccessible. In addition, this representation may depict a whole range of other dynamic consequences of the barrier, such as a generalized constriction of the field that may inhibit the child's locomotion in ways otherwise unrelated to the ball, and persisting long after the ball has gone. In short, a force field is an "open" system for taking into account, at a somewhat abstract level, any number of facts, such as circumstances in the environment and patterns of behavior.

The concept of field of force was later extended to deal with sociological phenomena (Lewin, 1943). A different type of force field, called a "phase space," was used to chart characteristics of a group -- such as ethnic prejudice or rate of production in a factory -- as functions of a multiplicity of forces, acting over time:

> Food habits of a group, as well as such phenomena as the speed of production in a factory, are the result of a multitude of forces. Some forces support each other, some oppose each other. Some are driving forces, others restraining forces. Like the velocity of a river, the actual conduct of a group depends upon the level (for instance the speed of production) at which these conflicting forces reach a state of equilibrium (Lewin, 1943).

The impetus for applying force field analysis in the context of social groups was related to a series of studies which demonstrated that efforts directed at individuals were relatively ineffective in changing social behavior, as compared to the effects of group process; and that often change achieved in an individual context was short-lived, at best, if not accompanied by corresponding changes in group standards (Bavelas, 1942; Lewin, 1942; Lewin, Lippit, and White, 1939).

To effect lasting institutional change it is necessary to deal with the institutional environment itself. The logical way to begin is to chart this environment as a field of forces, each with more or less power, and each more or less directed toward or away from the desired state of affairs. The EFI has been specifically designed to accomplish this purpose in the educational milieu. The focal variable, teacher effectiveness or classroom process, is a joint characteristic of individuals and of the educational setting; the "window" through which it is viewed is teacher attitudes; and the forces that are charted as more or less powerful and more or less helpful are easily identifiable entities within the teacher's work-space.

Development and Initial Validation of the EFI

Designing the EFI: Background and Objectives

The Responsive Educational Program, sponsored by Far West Laboratory, is designed to improve the form of educational experience offered the child, especially with respect to classroom process (Nimnicht, 1973). It is therefore concerned with improving the work-space and the effectiveness of the teachers by bringing about far-reaching changes in the educational setting and by providing in-service training. Implementing this model within local school districts, in the context of the national Follow Through program, involved some fundamental

changes in the interrelationships of school and community, of students, teachers, and parents, and of teachers, teaching assistants, and teacher-trainers. An important program evaluation objective, therefore, was to determine how participating teachers perceived those characteristic features of the program which have implications for their social-psychological field of force.

To provide a description of the teacher's social-psychological field, a technique must meet several practical requirements. First of all, teachers will understand its use and accept it. Second, teacher responses will reflect independently varifiable facts in the external world, as opposed to personal or role-oriented behavior. Third, the elements will be differentiated into some meaningful patterns, conducive to making decisions about program implementation.

Elements of the EFI

In delineating forces in the teacher's social-psychological field, we sought to identify prominent elements in the environment in the same terms as they overtly and tangibly present themselves to the teacher. On the basis of previous experience in implementing in-service training programs, the following ten forces were selected as important in influencing teacher morale and classroom effectiveness in public schools generally:

1. Principal of the school
2. Central Office administrative personnel
3. Other Teachers in the school
4. Parents of children in the class
5. Curriculum prescribed by the district
6. Testing programs
7. Statewide Mandates on certification, curriculum, grading, etc.

8. Physical Facilities available

9. Social Environment of the community

10. Curriculum Personnel such as reading specialist, art teacher, etc.

In addition there were three program components of particular relevance to implementation of the Responsive Educational Program in the context of Follow Through:[2]

11. Program Director -- coordinator of the Follow Through Program within the district: responsible for administration, community organization, and policy matters.

12. Program Advisor -- delivers the program to the classroom with in-service training and in-class assistance: each advisor responsible for about 10 classrooms.

13. Other Adult in the classroom -- teacher or teaching assistant: a teaching assistant in this model is a full-time paid para-professional assigned to the classroom and engaged in teaching activities.

Recording Teachers' Attitudes on the EFI

To reflect the constellation of forces in the social-psychological field, it is necessary to identify not only the forces to be assessed, but also the dimensions along which they are to be measured. Given any field, at least two dimensions would be required for an adequate specification. Consequently, the effects of individual forces upon processes in the classroom were to be specified in terms of both power, or amount of influence, and affect, or the degree to which influence is positive or negative in direction.

In completing the instrument, the respondent -- teacher or teaching assistant -- is asked to evaluate the set of 13 forces by carrying out three successive tasks.

Task 1. The 13 forces are ranked in order of their importance in influencing teaching. The force with the strongest influence, either positive or negative, is given the rank of 1, the least important the rank of 13.

Task 2. Each force is assigned a weight according to its relative importance in influencing teaching. A total of 100 points are distributed among the 13 forces, with the most important force assigned the most points. Any pattern of assignments is permissible: the respondent might choose to distribute the points evenly among the 13 forces or allocate them all to just one or two, with none to the rest.

Task 3. Each force is rated on a scale of 1 to 5, according to its positive-negative effect on teaching, with a rating of "1" indicating strong positive influence, and a rating of "5" indicating strong negative influence.

Design for Field Testing the EFI

A field test was planned to determine if the EFI was a viable technique, and specifically if it met its objectives and satisfied the criterion related to practical utility. In order to test the clarity and acceptability of the procedure, a trial with a large, unselected group of teachers was planned. To test whether the instrument did in fact reflect objectively ascertainable factors in the teacher's work-space, the degree of similarity in the response patterns of respondent pairs would be related to their degree of similarity along important dimensions of the social-psychological field, such as professional role (teacher vs. teaching assistant) and operational unit (classroom, school, district). Third, it was planned to relate responses on the EFI to those on an older, established instrument.

A Concurrent Validity Criterion: The Purdue Teacher Opinionaire

The Purdue Teacher Opinionaire (PTO) was chosen as a referent for assessing concurrent validity of the EFI. This instrument had been developed and validated as a measure of teacher morale (Bentley and Rempel, 1970). While the objectives of the EFI extend far beyond teacher morale, no other instrument was found with a scope equally broad. The PTO manual cites several studies which reported that scores of teachers correlated appreciably with those of their principals, as well as with other logically related aspects of the educational setting that could be assessed independently, such as teacher turnover.

In its current form, the PTO has 100 items which, in addition to the overall score for morale, yield ten sub-scores reflecting dimensions identified by factor analysis:

a. Teacher Rapport with Principal
b. Satisfaction with Teaching
c. Rapport among Teachers
d. Teacher Salary
e. Teaching Load
f. Curriculum Issues
g. Teachers' Status
h. Community Support of Education
i. School Facilities and Services
j. Community Pressures.

Method and Sample

In the spring of 1972, some 300 teachers and a like number of teaching assistants, in 14 school districts in 12 different states, were working with the Far West Laboratory to implement the Responsive Education model in Follow Through classrooms, kindergarten through third grade. The on-site program advisors in each district gave a copy of the two instruments, the EFI and the PTO, to each teacher and teaching assistant. The instructions were to complete and return them directly

to the Laboratory. The form for the EFI provided for several items of descriptive information to be filled in by the respondent, such as name, age, role (teacher/teaching assistant), and amount of teaching experience. Strict confidentiality was pledged, and in addition the option of leaving off the name was specifically allowed for.

RESULTS

The forms were received by a total of 572 teachers and teaching assistants. Of these 572, 428 or 75% correctly completed and returned at least the EFI. And of these 428, 394 -- 214 teachers and 180 teaching assistants -- completed and returned both forms. For teachers, the mean number of years of age reported was 35, and of teaching experience, 9. All but two of the teacher-respondents were women, and all but twenty had previously taught in the Follow Through Program.

The EFI data were analyzed separately for teachers and for teaching assistants. For each of the 13 forces, the following statistics were computed for both groups: the mean of the ranks assigned in Task 1, the mean number of weight points assigned in Task 2, and the mean ratings on the positive-negative continuum given in Task 3. These means and the corresponding standard deviations are reported in Table 1. These means were then rank-ordered within task: the rank scores are presented in Table 2.

For each force, product-moment correlations were computed between scores assigned on each of the three different pairings of the three tasks, and are presented in Table 3.

The ten factor sub-scores of the PTO defined in the manual were correlated with scores on Task 3 of the EFI for all 13 factors. The correlation matrix is presented in Table 4.

Insert Tables 1-4 about here

Patterns of Teachers and Teaching Assistants

Table 1 suggests that the power and affect attributes of each force were perceived similarly by teachers and by teaching assistants. Table 2 confirms this. In all three tasks, the mean scores calculated for the 13 factors gave rise to very nearly the same rank-order sequence within each of the two groups: the Spearman rhos for tasks One, Two, and Three are: .95, .85, and .97. Both groups considered Other Adult, Principal, and Program Advisor to be the most important and positive influences: the mean scores of these three ranked among at least the top four on all three tasks for both groups. Program Director and Curriculum were also rated both influential and positive. Forces such as Central Office Administration, Testing, and Statewide Mandates were considered to be the least important and the least positive influences.

These data suggest that the various forces are perceived as both more influential and more valued in direct relation to the extent of their physical and psychological proximity to the classroom: the nearer the force is located, the more it is seen as powerful and positive, and the further away, the more it is seen as weak and less positive. This direct correspondence between EFI scores and a salient and logically related aspect of the teacher's social-psychological field offers an indication of construct validity for the instrument. Moreover, these perceptions apply across work-roles: they are as true for a certified teacher as for a paraprofessional teaching assistant. This is another indication of construct-validity in that the correspondence between EFI scores and the educational setting is not primarily dependent on respondent characteristics.

Relationships Among the Three Tasks

For particular forces, the scores assigned in Task 1 and in Task 2 are correlated moderate-to-high. This is to be expected from the instructions, which ask for different expressions of judgments along the same dimension -- relative strength of influence. We may take this finding to be a reflection of internal consistency.

The correlations between either of the first two tasks and Task 3 are low-to-moderate. This again is consistent with the instructions: Task 3 asks for ratings along a dimension that is distinct from the one involved in the other two tasks -- positive/negative valuation rather than relative strength of influence. These low-to-moderate correlations then indicate that, psychometrically as well as conceptually, Task 3 represents a dimension that is distinct from the one underlying the first two tasks. While distinct, the two dimensions are not orthogonal: in most patterns (though not all) the more a force is seen as having strong influence, the more it is seen as having also a positive direction of influence.

The correlations between Task 3 and Task 2 are lower than those between Task 3 and Task 1. Presumably this is because the scores on Task 2 are more volatile: many respondents assigned all of their 100 points to just one or two forces, leaving zero to the rest.

Relationship of the EFI to the PTO

The PTO includes dimensions that are, from their labels and from their definitions in the manual, similar to forces on the EFI. On the PTO a high score indicates a "good" rating, or high morale, whereas the EFI Task 3 defines a score of "1" as most positive, and a score of "5" as most negative. To adjust for this inversion of scoring direction, the signs on the correlation coefficients in Table 4 have been inverted, to make a positive item reflect a positive relationship between

corresponding concepts. Positive correlations are evidence of concurrent validity. In fact, moderate-to-high positive correlations occur in three of the five instances where the name-to-name relationship is self-evident:

.68 between (1) Principal and (a) Rapport with Principal
.43 between (13) Teacher/Assistant and (c) Rapport among Teachers
.35 between (4) Parents and (h) Community Support

In the other two instances the correlations are low, but also positive:

.26 between (5) Curriculum and (f) Curriculum Issues
.20 between (8) Physical Facilities and (i) School Facilities and Services.

This series of correspondences between EFI forces and sub-scales of the PTO offers clear evidence of concurrent validity: since the conceptual match between corresponding elements is only approximate, we did not expect uniformly high correlations.

Implications for Program Implementation

One way to apply these data for evaluating program implementation is to look at the influence exerted by the three forces that represent the program. All three are important for delivering program concepts and techniques to the classroom. The presence of the Teaching Assistant, if properly utilized, improves the teacher/pupil ratio by a factor of two, making the child's classroom experience more responsive to him. The Program Advisor works directly with teachers to translate program goals and concepts into classroom process. The Program Director provides administrative and social support, especially to the teaching assistant, whose very role is made possible by Follow Through.

The pattern of EFI scores indicates that the impact of Follow Through on classroom teaching was both powerful and positive. Table 2 presents the rankings of the mean scores, taken separately by task and by teacher/teaching assistant. The teachers reported the force Other Adult, that is, the teaching assistant, to be highest of any

force in amount of influence on both Task 1 and Task 2, and also the most positive in direction of influence on Task 3. The teaching assistants, for whom this force represents the teacher, returned the compliment and also scored it highest on all three tasks. This reciprocal appreciation suggests good rapport within the classroom and mutual cooperation on common goals. The Program Advisor was also viewed as both powerful and positive -- the rank of importance scores, on both Task 1 and on Task 2, was fourth for teachers, third for teaching assistants; and the degree to which this influence was judged to be positive, on Task 3, was second only to Other Adult, for both groups. The Program Director was judged eighth in extent of influence by teachers and fourth by teaching assistants, but both groups judged this force as fourth highest in the degree to which the influence was positive.

The differences in the pattern of importance ratings can be seen more explicitly by reference to the Task 2 mean scores in Table 1. Since the total number of points assigned to all 13 forces is 100, the number of points and the percentage of total points is the same for any one force or for the sum of any number of forces. By adding the Task 2 points for forces 11, 12, and 13, we see that the number of points assigned to all three Follow Through components was 33.2% of the total for teachers, and 49.7% for teaching assistants. It appears that the differences observed between teaching assistants in their respective patterns of importance rankings relate not simply to differences in the way the two groups perceive individual Follow Through components, but actually reflect a clear-cut difference in their perceptions of the program as a whole.

These differences between teachers and teaching assistants in their estimations of the influence of the Follow Through program and its components on the classroom can be understood in terms of role differences in the social-psychological impact of Follow Through. The advent of Follow Through created a new role for the teaching assistant, and she sees the in-service training and other assistance provided by

program personnel as important resources in fulfilling this role in the classroom. But the teacher was there before Follow Through, and will continue to rely on/be influenced by other elements, such as the Curriculum and the Social Environment. For instance, the teacher attaches greater importance to the curriculum because she has to take greater responsibility with respect to roles and mandates built into the educational system independently of Follow Through.

DISCUSSION

Using the EFI for Force Field Analysis

The special contribution of the EFI is not its ability to measure attitudes in specific areas, but its ability to reflect two different aspects of influence, power and affect, simultaneously. This feature is essential for charting a force field -- a graphic representation of the elements of the educational setting.

Plotting a Force Field

Force field analysis uses a plot locating each force along the two dimensions of influence, power and affect. For example, in Figure 1 there are two plots, each representing a different school district. The two axes represent the two dimensions: horizontal for power, vertical for affect.

Insert Figure 1 about here

Each district's own norms were used to calculate z-score coordinates along each dimension: Task 1 scores were used for power, Task 3 scores for affect (Task 2 scores were not utilized). To calculate the coordinates along the power dimension, all Task 1 ratings were totaled, across all raters within the district and across all 13 forces, to get an overall mean; the totals for the 13 forces were used to cal-

culate the overall standard deviation; then, for each force separately, the mean across all raters was subtracted from the overall mean and divided by the overall standard deviation to yield a z-score deviation. The same procedure was used for calculating the affect coordinate using Task 3. These two z-score deviations were then used as the coordinates for locating each force as a point on the plot. All processing, including charting, was carried out by computer.

Forces that appear in the upper right-hand portion of the grid are those rated by teachers as having the strongest and most positive influence. Those forces located in the lower right-hand quadrant are also strong, but exert less positive influence. The EFI yields unique force-field patterns for different school districts. The teachers in District C see the Program Director, and to some extent the school Principal, as exerting very positive influence and both are seen as fairly powerful as well. But in District E these two forces are viewed as average on affect, and even less on power.

Applications of Force Field Analysis in Education

Currently the forces data are being applied in educational planning, and especially with reference to preservice and inservice training of teachers.

The EFI can be used to identify patterns of forces among schools within a district. Figure 2 shows how six principals were rated by their teachers in District E. Overall, the principals in this district were rated as having a low, slightly positive influence. When individual principals are plotted, considerable variability is evident.

Insert Figure 2 about here

This procedure yields important information. A pattern of forces may be viewed within a particular school district, or specific forces may be examined across various schools and districts. Moreover, comparisons can be made on the basis of local, regional, or national norms. At the Far West Laboratory this information is being used to assist with program implementation and program improvement.

The force field pattern of an individual district may point up a problem with respect to some element in the educational setting. The influence of teachers may be perceived as low or not too positive, indicating perhaps a need for inservice training. Parents may be viewed as unimportant or a negative influence, suggesting the need for community-oriented efforts. It may be that an important resource, such as the Program Advisor, who is responsible for inservice training, is viewed as positive but weak in influence, suggesting the need for special training for this important staff trainer. Or it may be that a resource is identified as being strong but not very positive in influence, suggesting a need for a more basic reorientation of the direction taken by that resource.

Specific information about such conditions provided by force field analysis can be a first step in dealing with the underlying problems. For example, the information depicted in Figure 2 is a revealing commentary about the way principals in the various schools of a district are relating to the work of teachers. This information was actually used as the framework for a series of on-site workshops conducted for those principals that dealt with the principal's role and function as it relates to the educational program being implemented in the district.

Insert Figure 2 about here

Other important uses of the forces data allow an educational change agent to monitor the effects of programs on the system. In this way, district staff responsible for staff development can be monitored with regard to teacher receptivity.

Combined with other implementation data, such as how much children are learning and how teachers are performing in the classroom, the EFI data can assist in the explication of the change process.

Further, as we learn more about how a packaged program is best delivered, implemented, and institutionalized within a school district, the EFI technique can be of tremendous value. It can help to document a school district's pre-existing conditions in an analytic way. The effect of these conditions on the implementation of a specific program can then be studied more adequately. Ultimately, patterns of conditions can be linked with delivery strategies to achieve maximum effectiveness in program implementation.

SUMMARY AND CONCLUSIONS

The EFI was constructed to adequately reflect the concerns of teachers. It provides information about the patterns of influence exerted on the teaching/learning process by significant elements in the educational setting. From the data presented it is evident that the EFI instrument is both practical and valid.

- The items on the instrument correspond to actual, tangible forces that can be considered and, if necessary, modified to the advantage of the teacher, the program, and thereby of the educational process.
- Teachers and teaching assistants found the instrument simple and easy to understand.
- The scores assigned to forces were clearly related to the objective relationship of the forces to the work of the classroom: e.g., the closer the force to the classroom, the greater and more positive the influence attributed to it. The effect due to the objective relationship of a particular force to the work of the classroom was far greater than that due to the effect of professional role status, as to teacher/teaching assistant.

This information has extensive application in educational planning. It is useful in meeting the needs of teachers, in monitoring program implementation, in setting priorities, and in evaluating program impact.

REFERENCES

Bavelas, A. Morale and the training of leaders. In G. Watson (Ed.): Civilian morale. Boston: Houghton Mifflin, 1942.

Bentley, R. R., & Rempel, A. M. Manual for the Purdue Teacher Opinionaire. West Lafayette, Ind.: Purdue Research Foundation, 1970.

Cook, W. W., Leeds, C. H., & Callis, R. Minnesota Teacher Attitude Inventory. New York: Psychological Corporation, 1951.

Dreeban, R. The school as a workplace. In Travers, R. M. W. (Ed.) Second handbook of research on teaching. Ch. 14. Chicago: Rand McNally, 1973.

Lewin, K. A dynamic theory of personality. New York: McGraw-Hill, 1935.

Lewin, K. Forces behind food habits and methods of change. Bull. Nat. Res. Council, 1943, 108, 35-65.

Lewin, K. Resolving social conflicts. New York: Harper & Brothers, 1948.

Lewin, K., Lippit, R., and White, R. Patterns of aggressive behavior in experimentally created "social climates." Social Psychol., 1939, 10, 271-299.

Nimnicht, G. P. The responsive educational program. San Francisco: Far West Laboratory for Educational Research and Development, 1973.

Rayder, N., Ng, P., & Rhodes, A. Implementation of the responsive program: A report on four planned variation communities. San Francisco: Far West Laboratory for Educational Research and Development, 1973.

FOOTNOTES

[1] We are grateful to Dr. Glendon P. Nimnicht for originally pointing out the need for this technique and for his help in conceptualizing the problem; and to Dr. Stephen Sheldon for his help in data analysis.

[2] Follow Through is a federally funded program that offers comprehensive services to children from kindergarten through third grade. The Responsive Education Program is one of the instructional models within Follow Through. A sponsor, such as in this case the Far West Laboratory for Educational Research and Development, works with participating school districts to implement a specific instructional model, by providing curriculum materials, in-service training for local staff, etc.

Table 1

Means and Standard Deviations of Scores Assigned by Teachers and Teaching Assistants on all Forces and Tasks of the Educational Forces Inventory

Forces	Teachers (N = 214)						Teaching Assistants (N = 180)					
	Task 1[1]		Task 2[2]		Task 3[3]		Task 1[1]		Task 2[2]		Task 3[3]	
	$\bar{X}$	sd	$\bar{X}$	sd	$\bar{X}$	sd	$\bar{X}$	sd	$\bar{X}$	sd	$\bar{X}$	sd
1. Principal	4.65	3.04	11.71	10.29	1.87	1.01	4.84	3.53	12.08	10.12	1.82	.99
2. Central Office	10.11	2.97	2.51	4.23	2.61	.77	8.78	3.76	4.12	6.95	2.65	.90
3. Other Teachers	7.33	3.51	5.96	6.74	2.19	.91	8.05	3.30	4.19	4.86	2.63	.91
4. Parents	6.57	2.90	8.30	6.54	2.29	.98	7.18	3.36	6.63	7.77	2.51	1.01
5. Curriculum	5.08	3.41	11.09	12.51	2.09	.90	6.27	3.30	6.41	7.73	2.33	.99
6. Testing	9.71	2.95	3.78	7.20	2.94	1.00	8.45	3.23	3.18	5.07	2.76	.96
7. Statewide Mandates	10.53	2.73	1.87	3.05	2.84	.75	9.71	3.04	2.32	3.49	2.87	.94
8. Physical Facilities	5.62	3.25	10.24	10.06	2.18	1.09	7.47	3.34	6.20	8.03	2.51	1.07
9. Social Environment	6.59	3.79	9.08	11.31	2.50	1.07	8.23	3.02	4.15	4.78	2.66	1.00
10. Curriculum Personnel	8.08	2.75	4.32	4.72	2.13	.80	7.59	2.98	4.41	6.18	2.40	.90
11. Program Director	7.11	3.39	6.72	9.07	1.91	.82	5.87	3.56	10.08	11.28	1.88	.95
12. Program Advisor	5.76	3.03	10.34	8.68	1.86	.95	5.17	3.28	11.20	10.78	1.76	.92
13. Other Adult[4]	4.50	3.36	16.77	15.44	1.62	.88	2.95	3.12	28.43	21.42	1.40	.82

[1] The lower the number, the higher the rated importance.
[2] The higher the number, the greater the rated importance.
[3] The lower the number, the more positive the influence.
[4] The teacher is rating the teaching assistant and the teaching assistant is rating the teacher.

Table 2

Rankings of Scores Assigned to Forces on Each of Three Tasks by Teachers (N=214) and Teaching Assistants (N=180).

Forces	Ranks for Task 1		Ranks for Task 2		Ranks for Task 3	
	Teachers	Teaching Assistants	Teachers	Teaching Assistants	Teachers	Teaching Assistants
Principal	2	2	2	2	3	3
Central Office	12	12	12	11	11	10
Other Teachers	9	9	9	9	8	9
Parents	6	6	7	5	9	7.5
Curriculum	3	5	3	6	5	5
Testing	11	11	11	12	13	12
Statewide Mandates	13	13	13	13	12	13
Physical Facilities	5	7	5	7	7	7.5
Social Environment	7	10	6	10	10	11
Curriculum Personnel	10	8	10	8	6	6
Program Director	8	4	8	4	4	4
Program Advisor	4	3	4	3	2	2
Other Adult	1	1	1	1	1	1
Spearman Rhos	(.95)		(.85)		(.97)	

Table 3

Correlations* Between Scores on Tasks 1, 2, 3 for Each of the 13 Forces for Teachers (N=214) and Teaching Assistants (N=180).

Forces	Tasks 1, 2(rating x points)		1, 3(ranking x pos-neg rating)		2, 3(points x pos-neg rating)	
	Teacher	Teaching Assistant	Teacher	Teaching Assistant	Teacher	Teaching Assistant
1. Principal	63	52	38	54	17	38
2. Central Office	58	41	17	25	03	23
3. Other Teachers	68	40	48	28	32	26
4. Parents	15	46	33	32	08	29
5. Curriculum	61	44	40	27	39	23
6. Testing	37	29	13	22	-05	16
7. Statewide Mandates	51	40	13	06	14	08
8. Physical Facilities	65	54	24	39	17	42
9. Social Environment	69	37	09	10	01	15
10. Curriculum Personnel	45	16	42	20	36	09
11. Program Director	52	41	45	42	25	38
12. Program Advisor	62	46	35	47	17	32
13. Other Adult	47	42	28	25	22	25
Average correlation	(.53)	(.41)	(.29)	(.29)	(.18)	(.25)

* Correlations involving Task 2 have been inverted in sign to adjust for variations from task to task in the scheme for assigning numbers: on task 1, high influence received a rank of 1; on task 2, high influence received the most points; on task 3, the most positive received a score of 1.

Table 4

Intercorrelation Between Task 3 of the Educational Forces Inventory (EFI) and the 10 Factor Sub-Scores of the Purdue Teacher Opinionaire (PTO) Collected on 394 Follow Through Teachers and Teaching Assistants.

	PTO Ten Factor Sub-Scores									
	Rapport with Principal	Satisfaction Teaching	Rapport Among Teachers	Teacher Salary	Teacher Load	Curriculum Issues	Teachers' Status	Community Support	School Facilities	Community Pressures
EFT 13 Forces	1	2	3	4		6	7	8	9	10
1. Principal	(68)**	27	38	12	22	42	09	12	10	02
2. Central Office	17	15	12	16	07	17	24	17	11	06
3. Other Teachers	20	17	(43)	15	15	24	03	12	05	16
4. Parents	04	11	18	13	01	16	16	(35)	08	15
5. Curriculum	18	10	03	15	14	(26)	12	24	06	03
6. Testing	-04	09	03	10	19	17	13	08	13	11
7. Statewide Mandates	-03	-04	03	04	08	08	07	07	00	00
8. Physical Facilities	21	26	22	08	09	22	11	12	(20)	03
9. Social Environment	09	17	05	00	-03	11	-02	18	04	05
10. Curriculum Personnel	11	06	12	13	-13	12	07	16	11	03
11. Program Director	30	29	16	-01	18	22	20	20	10	00
12. Program Advisor	28	27	22	-09	19	27	08	17	22	14
13. Other Adult	14	20	20	-07	15	17	16	15	16	22

* All entries have been inverted in sign to compensate for a difference in direction of scores: on the PTO a high score indicates "good" or "high" morale, whereas the EFI defines "1" as the most positive, and "5" as most negative.

** Correlations at the intersection points of corresponding EFI forces/PTO factors have been circled.

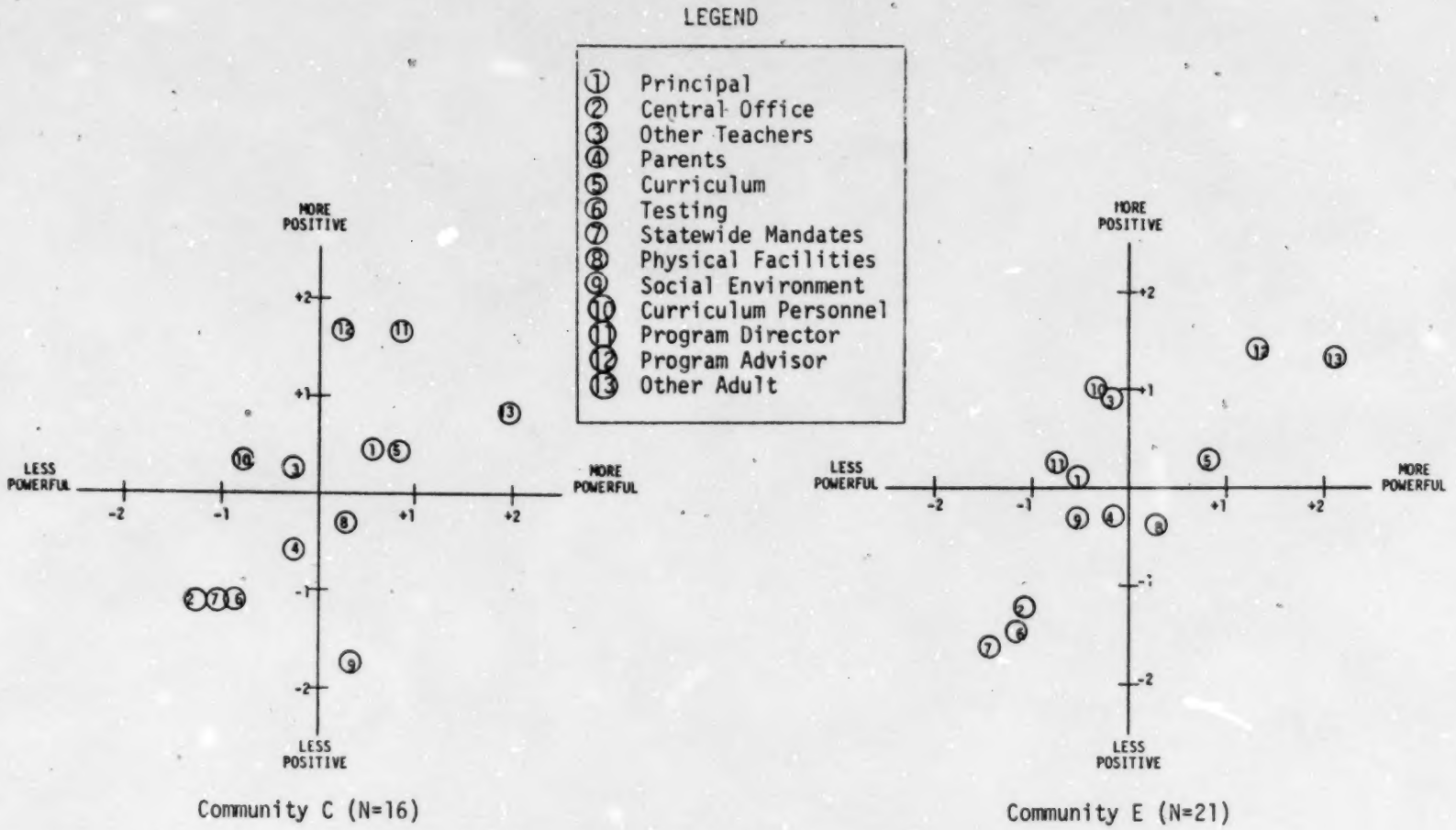

Fig. 1. Plots of z-scores of forces that influence teachers in two communities.

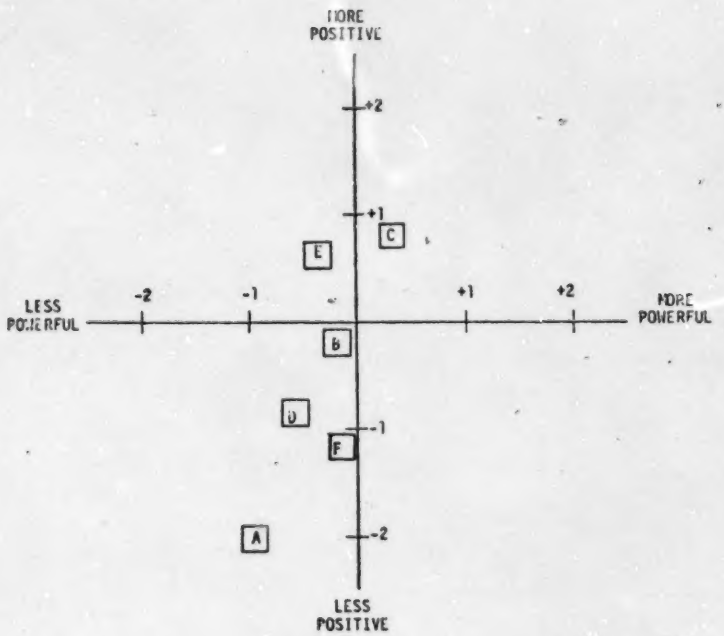

Fig. 2. Plots of z-scores for six principals in Community E.